

# XTAL

JUNE

1947

Vol. 9 No. 6

for the

Albert E. Yates,  
232 Benson Ave.,  
Toronto 10, Ont.

VE3BIQ

7/47

# radio amateur



Published by  
THE CANADIAN AMATEUR RADIO OPERATORS' ASSOCIATION  
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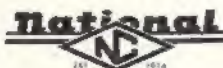
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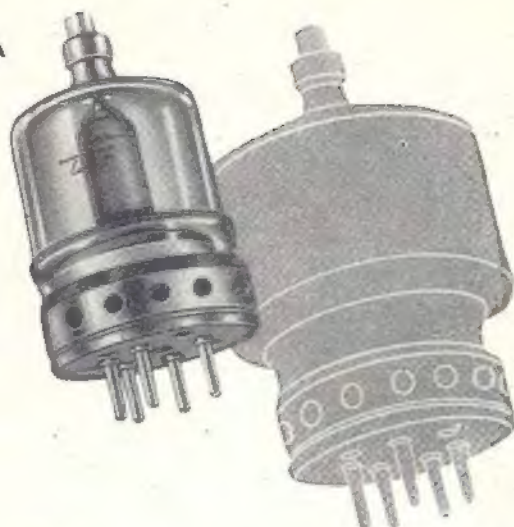
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# XTAL

[CRYSTAL]

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JUNE

1947  
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### CONTENTS

Editorial .....	6
QSD? - QR1? .....	7
VHF in Canada .....	9
Ottawa Hamfest .....	9
Thousand Islands Hamfest .....	11
Curing Gassy Tubes .....	11
ARRL Proficiency Awards .....	12
BERU News .....	12
DXers of The Month .....	13
Glacier Eagle .....	13
Dear OM .....	14
National Report .....	15
Ham-Ads .....	24

### HILITES

XTAL's cover this month is of George Behrend's antenna farm. Good reason why Ve4RO is so hard to beat as DXer of The Month.

Walter Anderson's article on keying, page 7, should appeal to exponents of the gentle art of break-in as well as those troubled with the not so gentle art of key clicks.

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## **... These QSO's of Ours ...**

ONCE there was a ham who saved up all his money to build a big rig with a pair of T40's in the final. He also acquired a 200-watt modulator and a power supply that could kick him across the room if it got a chance which, unfortunately, it didn't. Every night he rushed home from work and went on the air. He started each QSO with a description of the weather followed by a description of the rig. The only other thing he could think of was to ask for a QSL card, after which he always explained that he had to QRT. This was so he could work someone else and describe the weather and his rig all over again.

This ham had a neighbor who dropped in one night for an educational evening. He falsely assumed that anyone who could build a transmitter must be intelligent. He'd never seen a ham station in operation and was looking forward to it very much.

It was a wonderful, hammy sort of evening. The ham had a lot of QSO's and explained that "the handle here is Willie." He shouted "Hi!" so many times that the man from next door thought it was a report on the altitude and he called so many people "old man" that his neighbor got the notion that they were communicating with a home for the aged. No contact lasted more than ten minutes so that his neighbor mistakenly thought that there was a law against long QSO's. He also came to the conclusion that ham operators were obliged to start each transmission by repeating, word for word, what the other operator had just said to them.

It occurred to the neighbor rather suddenly that if the amateur hadn't built the rig he wouldn't have to describe it, and if he didn't start his five-minute QSO's he wouldn't have to spend most of his time terminating them.

It reminded him of the joke about the man who said he worked for money to buy food to keep strong so he could go to work. The neighbor nearly said this but he figured it would sound rude, so instead he went home and read a good book.

Seriously, fellows, an alarming number of amateur QSO's serve no good purpose whatever. They would give any impartial observer the notion that amateurs were more than slightly cracked. No intelligent subject is discussed, they contain more repetitions and stodgy expressions than the dulllest every-day conversations and many of them are started with apparently no other reason in mind than finishing them . . . the "just thought I'd give you a call" sort of thing. To put it rather unkindly, such hams are playing at radio. They're in the same class as the amateur photographer who spends many hours and many dollars yet never produces a decent picture. He just photographs the back side of a barn so he'll have something to drop into the developer and puddle around with.

Why not a campaign for intelligent QSO's? Talk about something beside radio once in a while and when you are chewing the rag on radio avoid the hack, stereotyped stuff about "the rig here is, etc." Another man's occupation or profession could easily be the subject of a lengthy and interesting conversation. Find out if he has any other hobbies, ask him what travelling he's done, try to discover what he's especially interested in . . . it ought to be easy to find a dozen things to talk about. Amateurs have at their very fingertips an opportunity which no other group has . . . and most of them do nothing about it.

Amateurs know that their existence is justified. Most of their QSO's would never convince anyone else of this fact.

## **LAPEL BUTTONS**

THE season of Hamfests and vacations is upon us once again. Identify yourself as a member of your Association by wearing a new CAROA Sterling Silver Lapel Button Emblem. They are ready for immediate delivery. They cost only 75c postpaid. They measure only  $\frac{3}{8}$  of an inch across, are red on a silver field and are just about the nicest lapel button we've seen in many DX moon. We have only 500 of them at present and at the rate they're moving you may have to act fast!



# QSD? - QRI?

By W. H. Anderson, Ve3AAZ\*

ON all the ham bands, the tendency in recent years has been to operate closer and closer to one's own frequency, raising problems where break-in is contemplated. Also, due to the greater density of stations, a reasonably narrow signal has become mandatory. As a result, keying has become a more exacting problem—rather than merely one of turning the transmitter on and off.

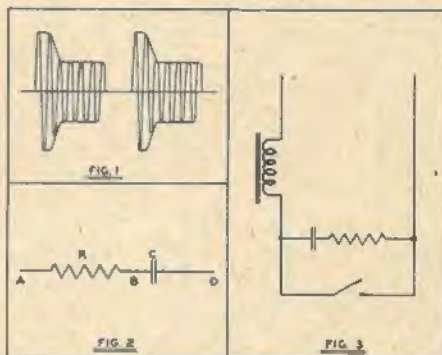
The question may be resolved into two general channels: The shape of the emitted signal which includes click, thump, chirp, etc., and secondly, other transient phenomena which will bother our own receivers but not those a very short distance away, such as sparking at the key, mercury hash, oscillator stand-by signal, etc.

At the risk of pointing out the obvious, it might be said that a signal whose appearance is like that of Fig. 1 is going to cause trouble. Often this type of signal results from the simple fact that the power supply has a chance to store up energy in the interval between characters, consequently when the key goes down again, the transmitter output is very high for a split second before eventually settling down to its normal value. Now it doesn't require a mathematical analysis to deduce that a host of other frequencies besides the fundamental are present in this signal. While power supply bleeding will alleviate this situation somewhat, the problem may be further complicated by the frequency (chirp) as well as the amplitude (thump) undergoing change at the beginning of each dot or dash, if the keying stops and starts the oscillator.

In order to circumvent this sudden burst of output, some sort of "shaping" will be required. The fundamental shaping circuit is shown in Fig. 2. When voltage is applied across points A and D the condenser will "soak" up energy and the voltage will begin to build up across B and D. The larger the capacity of C and the higher the resistance of R, the longer it will take this voltage to build up. Conversely, if A and D were shorted, the voltage across B and D would die out—the time required again depending on the size of C and R, the larger C and the higher R, the longer the time.

As outlined above, the beginning of the wave train is the point where trouble is most likely to arise—the shaping at the end being not so

much of a problem. Now it must be appreciated that a filter such as Fig. 2 across the key does not affect the starting of the signal as the filter is shorted out when the key closes, and this type of filter is useful merely to absorb sparking when the key goes up, but unfortunately often more than makes up for this by contributing a sizeable spark when the key goes down. So to directly shape the power circuits, a filter of the form of Fig. 3 will be required. Due to the difficulty of obtaining chokes of proper dimensions, or rather of a variety of values so that the correct one may be found by experiment, this type of filter is rather uncommon.



Another of the pitfalls in shaping circuits may be noted by reference to Fig. 4, which is intended for use as a grid block method. The voltage that controls the operation of the stage is that appearing across C1. The time constant circuit when the key goes down is C1 and R1. Since R2 must be fairly large to prevent short-circuiting the bias supply, it is obvious that the time constant at the end of the signal will be much greater than that at the beginning. Result: For any combination that will give sufficient shaping at the first of the train (large C1 and R1), the signal will hang on for a noticeable length of time after the key is raised.

The only solution seems then to go into some form of vacuum-tube keying where the shaping circuit can be placed in the keyer tube grid circuit, and can be made pretty well what is desired by various values of capacity and resistance. However, the necessity of having to use a number of keyer tubes totalling the

\*Ashburn, Ont.







# VHF IN CANADA

Conducted by GORDON COLEMAN, VE3ANY

**T**HE biggest news this month is the continued E layer skip dx openings on 50-54 mcs. Signal strength have been good, duration of the dx reasonably long, and they have been frequent enough to give nearly every 6 meter ham a real treat. There is good promise of these openings becoming more frequent as the summer months approach and 6 meters bids fair to give 10 a run for its money!

Super-het receivers, or converters are not an absolute necessity, but super-regens should have an R.F. stage to prevent any unwelcome radiation. As previously stated, transmitters should be as stable as xtal control, not only to comply with recent regulations, but because the W's are using some fb. receiving equipment.

We received a report recently that LU3DH in Buenos Aires, Argentina, has been hearing weak W and VE stations during north-south E layer (or F layer?) openings and that he suggested the use of straight CW so that stations could be identified. What say fellows? No reason why, in this day of development, we shouldn't add a BFO to our receivers and use CW in our transmitters, to increase our range.

This month, also, our column begins to take on a more Canada-wide flavour, with the reporting in of several more VE districts. Thanks, fellows, for your support. We will try to do justice to your letters. Photos are very acceptable, but don't be too disappointed if they are not all printed. Photos must be 620 or larger and good glossy prints; negatives are preferred and will be taken good care of, and promptly returned.

Your scribe was honoured to have taken part in the A.R.R.L. VHF Marathon on May 17 and 18, in company of some very fine "joes" from the Hamilton Amateur Radio Club. Their permanent field-day location is at Waterdown, Ontario, about 15 miles north-east of Hamilton, on a peak which is 400 feet above Lake Ontario and the surrounding countryside. Toronto, Hamilton and Niagara can be readily seen on a clear day and the location is a "natural" for VHF work. Individual QSO's for the Marathon period were 50-54 Mc—35, 144-148 Mc—30 (including numerous W2's) 235-240 Mc—1 and 420-430 Mc—1. The call used was the club call Ve3BNQ and best dx was W2RLV in Honeoye Falls, 20 miles south of Rochester, a distance of 120 miles. This was on 6 meters.

Power was obtained from an Onan 1.5 Kw gas driven generator and equipment was as follows:— 12 tube FM-AM super and 3 tube converter into SX-25 for 50-54 mc. 2 tube converter into SX-25 and National 1-10 for 144-148. Also band switching FM-AM receiver for 10-6 and 2. National 1-10 and acorn super-regen for 235 mc. and 420 mc. The two 6 meter transmitters were xtal with 50 watts. The 144-148 mc. transmitter was xtal with 829B final running 70 watts. 235 mc. trans was p.p. HY615's, 10 watts long lines, and 420 mc. trans was pp. 6C4's long lines with 6 watts. Antennas were vertical folded dipole and horizontal 3 element beam for 50 mc. Vertical and horizontal 6 element beam for 144 mc. 6 element beams also for 235 mc. and 420 mc.

We would like to hear of more Canadian groups participating in this contest.

Six meter dx openings lately were as follows:

April 22—17.00-17.15 hrs. — W5's and W2's heard in Toronto.

May 10—15.00-17.00 hrs. — W5's, W4's, and W0's heard in Brantford, Hamilton, Toronto and Oshawa. Resulting QSO's were:— Ve3AZV (Oshawa)—WoTQK, WoZJB; Ve3KM (Burtonville)—WoTQK; Ve3BAD (Oshawa)—WoZJB; Ve3ANY (Lakeview)—WoTQK, WoZJB.

May 11—11.40-12.30 hrs. — Heard were W5HTZ, WoTQK, WoZJB, WoGJN, WoDKS, WoICV. QSO's were Ve3ANY - WoDKS.

## HAMFEST

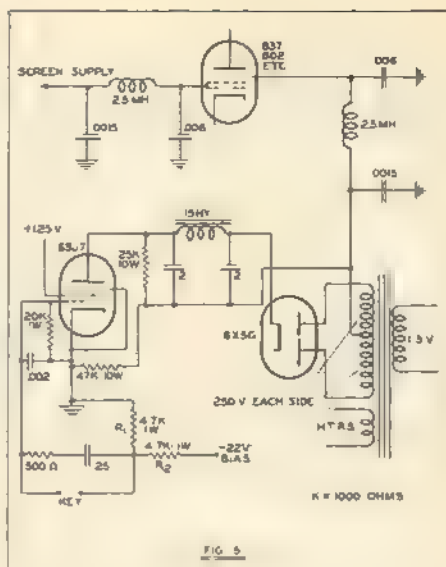
On July 1, 1947, the Ottawa Amateur Radio Transmitting Association will go forth with one accord and both feet, to their Annual Picnic. The fee, if any, will be nominal. Come one, come all, the earlier the better, and bring the family. The location is at Breckenridge, P.Q., on the left side of the road (No. 8 Highway), as you enter Breckenridge, P.Q., from the Aylmer, P.Q., side of the town. It is about seven miles from Aylmer, P.Q. Bring your own eats. There will be lots of contests and prizes.

same plate current capacity as the keyed stage is a justifiable objection to this method.

One prominent commercial transmitter manufacturer (Collins) employs a circuit similar to Fig. 5. Such an arrangement is not without faults, but would appear to have a number of distinct advantages. The circuit values are not particularly critical, and the only external requirements are about 125 volts positive for the 6SJ7 screen (generally obtainable from the exciter power supply) and a combination of values at R1 and R2 that will place a bias of about 12 volts on the 6SJ7 grid when the key is down.

The operation of the unit is quite straightforward—when the key is down the 6SJ7 is blocked by the bias on its control grid and the output voltage of the keyer rectifier appears only across its own bleeder. However, when the key is up, the 6SJ7 conducts, placing about 230 volts across the 47K resistor in the proper polarity between the oscillator suppressor and ground to effectively block the oscillator output. This arrangement obviously entails the use of an oscillator tube with its suppressor grid brought out to a base pin. Unfortunately the 89 (and 59) requires an extremely high suppressor bias to cut it off and so is unsuited. The 837, 802 and RK25 are excellent, but the 837 has a 12.6 volt heater and would involve another filament transformer in many excitors. The principal objection to the 802 is its "mud" base.

The 6SJ7 grid circuit constants will provide adequate shaping at least to highest possible "bug" speeds. Different shaping effects may be obtained by placing various combinations of

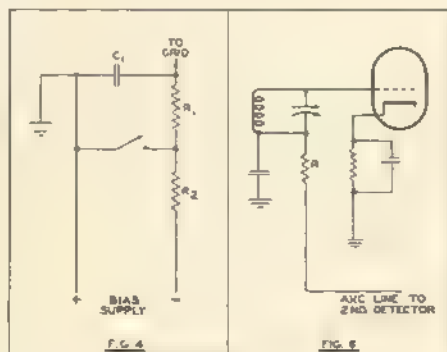


in other words one with reactive elements in the cathode circuit, such as an RF choke or in the case of the tri-tet, a tuned circuit. In such circuits, the crystal actually oscillates in the grid, cathode and screen-grid "triode" quite independently of the plate circuit. The plate is generally tuned to a harmonic and is coupled "electronically" to the oscillator. The suppressor then merely controls this harmonic amplifier circuit.

It is perhaps worth mentioning that in the tri-tet, varying the cathode condenser varies the capacity that the tube reflects into the grid circuit (due to "Miller effect") and consequently varies the frequency slightly, a point that is certainly not against the tri-tet as far as operation is concerned. In short, suppressor keying in such circuits keys the oscillator stage output, without actually stopping the crystal from oscillating. Reasonable precautions such as a pi-network filter in the screen and suppressor leads and moderate care as to shielding will reduce the stand-by signal in the receiver to a point that it will only block the exact frequency being employed.

However, when operating the oscillator stage on the crystal frequency, it sometimes becomes undesirable to have the crystal continuously oscillating, as even a slight amount of capacitive effect between the tube elements will tend to make the oscillator operate as a straight pentode, and with tubes like the 807 or RK39 following the oscillator even a feeble signal on their grid will provide a back wave. Generally this situation can be circumvented by a reduction in screen grid voltage and the stage will still maintain an output equal to a

QSY to page 22



capacity and resistance in series across the key, the 500 ohm and .25 mfd. combination shown being optimum in most cases.

The principal limitation as well as the finest feature of this arrangement is tied in with the fact that this type of keying is generally employed with a regenerative type oscillator, or



## 6 METER DX DERBY

Call	No. DX Contacts	Call	No. DX Contacts
Ve3ANY	15	Ve3DC	2
Ve7NM	9	Ve3AZT	1
Ve3KM	6	Ve4AP	1
Ve3AZV	6	Ve3AVG	1
Ve3AVW	5	Ve3BFF	1
Ve3AEU	5	Ve3AND	1
Ve3ATB	2	Ve3LU	1
Ve3NH	2	Ve3BAD	1
		Ve3AIB	1

May 14—20.00-21.00 hrs. — Heard were W5FSC, W5DSB, WoGVS, W5ZS, WoYUG and WoTQK. No contracts as yet reported. (Coinciding with this opening is the report that Ve3AID and Ve3TH, Willowdale, Ontario, were working 144 mc. and at 20.30 hrs. heard W1NBV working W2BAG. This is the first report of W1 district coming thru to Toronto area on 2 meters.

May 21—20.00-23.00 hrs.—Heard were W4AQ, W4GJO, W4DRZ, W4GIY, W4QN. QSL was heavy but signal strengths good. QSO's were: Ve3AIB-W4GIY; Ve3ANY-W4GJO; W4QN.

In talking to, and listening to, W4GJO it was apparent that the W4 district was the only one heard to the north, while the W4's were hearing W9, W8, W1, W2 and Ve3. This was definitely a north-south opening. Either that, or the W8 and W0 boys had their beams pointed south only!

## CANADIAN DX RECORDS

50-54 Mcs.

Ve4DG (Winnipeg, Man.)—W8QYD (Dayton, Ohio) approx. 1200 miles, July 1, 1947.

235-240 Mc.

Ve3BNG (Waterdown) — Ve3AEZ (Hamilton)—15 miles—May 18, 1947.

420-430 Mc.

Ve3BFF (Hamilton)—Ve3AND (Hamilton) 1 4/5 miles—May 18, 1947.

## VHF NEWS

### Ve1 District

Active on 50-54 Mc. in Halifax are Ve1SF, 1QG, 1QZ, all xtal controlled. Ve1SF runs p.p. 7C5's to 4 element beam and has acorn tube super-regen for 6 and 25 watts to 8012 mod. osc. for 2 meters into 4 element horizontal bam. Tuesdays from 19.00 hrs. to 21.00 hrs. is "open house" nite in Halifax area on 144 and regular "ham hunts" are being held on this band. Also active on 144 are Ve1BC, 1QZ, 1TM, and building are 1MZ and 1QG. Best local dx is 25 miles over uneven country. Ve1LO (Lakeburn, N.B.) (ex. 4TX) is QRT due to housing facilities and confined space.

Ve1LO and pal Ve1QT expect to get going again soon however, and we wish you every success, boys! Ve1BC (Halifax) has National 1-10 receiver.

Ve1QZ (Halifax) has fb 3 element beam for 6 meters and a 7 element, 25° sharp, signal squirter for 2! Oscar now has his M.Sc. degree from Dalhousie "U" and should be more active. Congratulations OM for a swell job done! 1QZ use 829B final with 75 watts for 6 and ARC-5/T23 war surplus transmitter for 2 meters. Receivers are "lighthouse" tube preselector ahead of R.M.E. "VHF 152" converter into a HQ 129X. Frequencies are 50.1, 50.4 and 50.7 megacycles, so listen for him during skip dx. Ve1TR (Chester, N.S.) is building and will be on the 50 Mc. soon.

### Ve2 District

Ve2KH missed opening May 6, by was on hand May 14 and 15. On May 15 he heard one Wo. Looks like Montreal may be in a poor position, geographically, for dx-on 6 meters. John reports Montreal district getting more interest in VHF lately, with 11 stations represented.

### Ve3 District

Ve3BEC (Toronto) has new 6V6 final and co-axial antenna. Ve3ABA (Lansing) runs p.p. 826's in final. Ve3AJJ back on air since college term over. Ve3BIJ, Ve3AVF (Toronto) back on since rebuilding, Ve3AH (Mimico) calling cq 235 Mc. these days. Ve3AIB (Toronto) finally worked some dx! Nice going, Les! Guess we can't help mentioning you in the column now, eh? Ve3AEZ (Hamilton) back on air since rebuilding and doing 50 Mc. and 235 Mc. work. Ve3KM (Bartonville) xtal control now on 2 meters with 75 watts to 829B and 6 element vertical beam. Ve3AIR (Dundas) and Ve3LU (Brantford) still trying to poke a signal into Toronto. Keep trying, fellows! It can be done. The Oshawa horizontal boys 3AZT, AZC, AZV and BAD put fb sig. into Waterdown, Ontario, 70 miles west of Oshawa.

### Ve4 District

Sad news from Ve4DG (Winnipeg) 75% of Ve4's off the air on 6 meters due to new regulations but are feverishly rebuilding. Ve4FU going to 144 Mc. with 829B final and vertical antenna 160 ft. high! Ve4CD (Winnipeg) has 807 final with 30 watts into vertical folded dipole and building 826 rig to run 100 watts on 6. Receiver is TRF using acorn tubes and is mechanically designed for later "conversion" to a converter.

### Ve5 District

Ve5MW (Oxbow, Sask.) is temporarily off the air. We would like to hear more of Sas-

QSY to page 20

# Curing Gassy Tubes

By R. G. Coleman, VE3ANY\*

How many times have you found a tube becoming harder and harder to drive? How many times have you run that old plate red or nearly so? Well, sometimes the old bottle is ready for the scrap heap after exceeding the plate dissipation for extended periods, while many a good tube has been used for trying out the old B.B. gun, just because we haven't known how to rejuvenate said bottle. Here's a little treatment that will show a shot of adrenalin into most "defunct" bottles and supply them with crutches at least.

Especially on VHF, with tubes such as 826, 829B, 832A, etc., where the extra little bit of soup in the tank circuit seems like a kilowatt, do most of us pile on the coal. While we have never found it in any of the general handbooks or radio, in the manufacturer's data sheets it is recommended that these tubes be forced-air cooled. Otherwise, we must use 60 to 70% of the stated input. In case you didn't hire a small boy to blow on your glassware and are suffering from the "gassy blues, here's what to do.

1. Remove the tube from its circuit and apply filament or heater voltage only. Use a heater voltage about 20% in excess of the rated voltage ( $6.3V$  plus  $20\% = 7.5V$  approx.).
2. Leave the tube running with the heater lit for 20 minutes, then try the tube back in its original circuit.
3. If no cure was effected, repeat No. 2 for three more 20-minute periods with trials in between.

If the situation has not improved, the following treatment may have to be applied:

1. Connect the tube in a rectifier circuit as shown in Figure 1 with the following recommendations:
  - (a) Leave the control grid floating, or connect to the cathode or one side of the filament if no cathode.
  - (b) Apply 20% overvoltage to heater, as before.
  - (c) Tie all other elements (screens, suppressors, etc.), to plate.
  - (d) Use lamp of approximately twice the plate dissipation in watts.for 10 minutes. Remove tube and replace in its original circuit and check for a cure.
3. If no cure is effected, repeat the above procedure using 10-minute intervals until one hour has been applied.

If the above methods do not reclaim the

gassy tube, it is beyond help, and you might just as well plan on raiding next week's pay cheque. However, a good percentage of gassy tubes may be reclaimed by controlled heating as explained. Some tube elements emit gas when heated, and others such as the cathode and particularly the "getter" absorb gas and entrap it, so that only further overloading will cause its release again.

We are not prepared to say how many times a "gassy" tube may be reclaimed by the above procedure, but a good rule is to play safe and run the tube light so that you will not have to rejuvenate it more than once!

## DIODE FOR BREAK-IN

Have you ever tried a diode across the RF coil in the receiver to prevent overloading when transmitting? Does away with relays. We used them in the R.C.A.F. and R.A.F., using the same antenna for both transmitting and receiving, with both receiver and transmitter running all the time. When the RF from the transmitter hits the antenna, the diode conducts, effectively putting a short across the RF coil, preventing its burning out, and making the receiver quiescent. As soon as the key is lifted, the receiver is operative again, and break-in is worked very easily. I am going to incorporate one on my new receiver. We had a tiny button type diode, a VR38, if I remember correctly. A 6H6 should do the trick quite well, tied as a half-wave rectifier.

—VE3AZH (ex-4ANM).

## EMBLEMS

**Caroa Lapel Buttons are  
now available for immediate  
delivery.**

## HAMFEST

The Thousand Island Amateur Radio Association will hold its first hamfest at Brockville in the 1000 Islands, on July 6, 1947, and will welcome any amateurs at this meeting. As the designated spot is on the banks of the St. Lawrence River, it will be an ideal outing for the whole family. If hotel accommodation required send reservations to the Secretary, VE3WG, or if cabins desired these can also be reserved.

\*c/o XTAL



# CANADIAN PROFICIENCY AWARDS

ARRL Code Runs



Aug. 19, 1946	WPM
William Welch, VE3BCS	15
G. A. Ford, VE3AEZ	20
Arthur W. Blakely, VE4BKJ	2
Vicior Sokolowski, VE3BIN	25
W. J. Ford, VE1RT	25
Donald R. Gunn, VE3EF	30
K. T. King, VE3AXQ	30
Endorsements:	
D. H. Johnson, VE1PQ	30
J. Whiteby, VE1OK	30
Glenn D. Love, VE1GJ	35

Sept. 18, 1946	
Fred K. Noble, VE3BAJ	20
Endorsements:	
H. Pearson, VE3AMI	20
John H. Scott, VE3AFY	25
Donald R. Gunn, VE3EF	35

Oct. 17, 1946	
Leon Baldwin, VE2TM	15
Earl Smith, VE3SF	20
Paul Bourassa, VE2JN	25
J. L. Gartshore, VE2OL	30
J. L. Ward, VE2HF	30
Bill Mertz, VE3UN	30
G. E. Farquhar, VE3IA	35
Endorsements:	
Fred K. Noble, VE3BAJ	25
R. Lautenslager, VE3ATR	30

Dec. 15, 1946	
W. H. Near, VE3ACB	15
Bob Rennie, VE3IR	30
David S. Hutchinson, VE3DU	25
H. Murray Fitzgerald, VE1HP	20
J. E. McDonald, VE3YV	15
J. Stewart, VE5KJ	20
Endorsements:	
Leon Baldwin, VE2TM	20
Fred K. Noble, VE3BAJ	30
Bill Mertz, VE3UN	35

Nov. 15, 1946	
Endorsements:	
H. Pearson, VE3AMI	25
R. Lautenslager, VE3ATR	35

Jan. 14, 1947	
R. H. Wicks, VE1PZ	30
John W. Carveth, VE3VZ	30
Fred Mills, VE3ACR	20
R. D. Carter, VE3QD	15
R. MacDonald, VE3APS	25
Thomas C. Wylie, VE3WY	30
Gordon H. Webster, VE2BB	20

Feb. 13, 1947	
J. T. Morton, VE3AJM	15
Stanley M. Dane, VE3PB	15
Erich Bartmann, VE3VD	25
V. G. Stevens, VE3BBQ	15
Walter M. Guillot	30
R. H. Wicks, VE1PZ	35
J. E. McDonald, VE3YV	20
R. D. Carter, VE3QD	20

QVE

Please notify CAROA HQ of any changes in QTH immediately. Always state your call if you have one.

# BERU Notes

"Ham" Whyte (ex-G6WY) is now in Toronto at 214 Delaware Ave., with his xyl and jr. ops . . . VE3KE made 119 contacts in the first section of the BERU contest.

The following notes are taken from the April issue of the Short Wave Magazine, published in London. We hope by next month to have a few notes from some of the other British countries.

The editors of SWM have divided the world into 40 zones, which seems very fb . . . A nice picture of VE3BKL and his xmtr covers almost half a page . . . There is a good article on a 5-10 converter for the R1155 . . . At 1330, March 26, PAUN was heard by ZS1AX, ZS1P, and XS1T up to S9 on 50 meg.

The Amateur Bands in England: 1715-2000 Kc, 10 watts (A and B); 3500-3635 Kc, watts (A); 3685-3800 Kc, 150 watts (B); 7000-7300 Kc, 25 watts (A), 150 watts (B); 14000-14400 Kc, 25 watts (A), 150 watts (B); \*28000-30000 Kc, 25 watts (A), 150 watts (B); \*58500-60000 Kc, 25 watts (A and B); 460.5 Mc, 5 watts (A and B).

\*FM permitted "A" licences are all three-letter calls issued post-war, and are for CW operation only; licensees in this category are not normally allowed the use of telephony and full power till they have had 12 months' experience. Class "B" are holders of reissued pre-war two-letter call signs, and are allowed the unrestricted use of CW, MCW and phone with power as given above.

# QSL Note

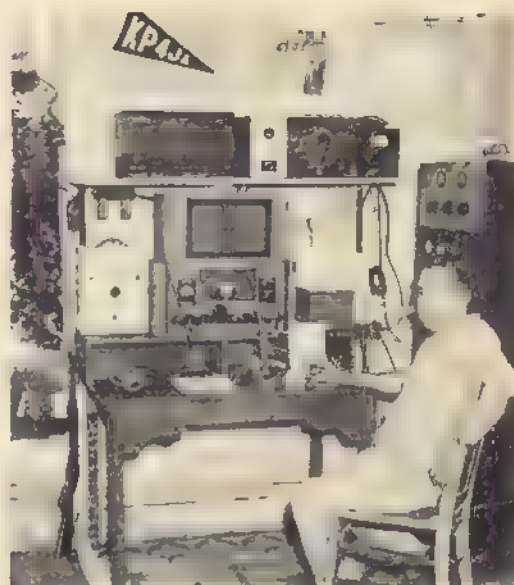
Bert Knowles, Ve3QB veteran ARRL QSL Manager for Ve3 informs us that unless he cleans his files of envelopes containing only a few cards each that he will have difficulty finding space to operate his own rig! Don't be disappointed if you are the recipient of a notice and an envelope containing only SWL or W QSLs. If he didn't move these envelopes his files would be bulging into the adjacent corn field. This, however, does NOT mean to discontinue supplying Mr. BK with an envelope marked in the upper left-hand corner with your call, and self-addressed in the proper place. If you don't do this you might miss a choice bag full of tid-bits in the DX line. This applies to all districts. Watch XTAL or QST for QSL Manager lists from time to time.



# DX'ers of THE MONTH

**Ve4RO**  
**57**  
**countries**

Call	April Total	Post-War Total
Ve4RO	57	122
Ve1PQ	32	73
Ve1EY	25	42
Ve3ADM	24	55
Ve3BBZ	21	46
Ve3QB	20	42
Ve1AQ	19	33
Ve8AS	15	32
Ve1QT	14	16
Ve3BBY	12	27



**KP4JA**



Call	Countries Worked in April
Ve4RO	G, VP9, KW6, YI, UA3, XE, KH6, KP4, VK, LU, TG, ZL, KZ5, IS, KL, CA, GM, I, ZS, PZ, SM, OZ, UZ, OK, D4, HB, ON, CE, KN, LX, VO, GW, LA, ON, OH, VQ3, CM, KS4, PY, KV4, HC, VP2, IQ, ER, TI, VP4, YR, PA, GL, VQ2, EI, VK9, PK6, HZ, VR5, J, UB, UP, OA
Ve1PQ	G, GL, OK, EI, UB5, PA, VK, KZ7, VP5, FA, GW, ZS, PY, ZL, KZ6, ZD4, GM, HB9, SM, F, VO, OZ, UA3, ON, ON, VK9, CN8, I, D, KP4, CM, NY4
Ve1EV	ZS, ZL, VO6, VK, OK, OH, OE, G, W, EA, GM, CN, PA, VS7, OZ, HB, SM, LA, IL, ON, ZB, FS, UA3, D4, CM
Ve3ADM	OX, VK, ZL, G, FN, OZ, HB, OK, UA3, PA, ON, VO1, IL, CE, KL, CO, KG6, ZM, KV4, VP9, VP5, PK6, W/VK9
Ve3QB	G, VP5, GW, GM, VK2, VE, F3, KP4, VP4, CO, ZE, VS9, XZ2, VO1, LA, IL, VO6, UA3, OK, VK7
Ve1AQ	ON, UV5, W, VE, VO6, G, KZ5, KS4, OK, CO, F3, VK, GM, PK6, ZL, JS, CN, ZB, GW
Ve8AS	KH, J2, SM, G, FS, ZL, VK, LA, KL7, ON, PA, W, VE, CN, CE
Ve1QT	ON, UK, F, G, GM, HB, UB5, VE, W, OZ, BO, I, EI, PA
Ve3BBY	GM, ZS, PA, G, HB9, F3, ON, GL, CX, VK, OK, W3QOH/MM/PY7
Ve2FG	G, D4, GM, KL7, XE, OX3, IL, ON, FG

CAROA member Ulises Martin of Santurce, Puerto Rico, is well known to Ve 10-meter addicts. Rig running 350 watts to push-pull T55's is modulated with 811 in Class B. Variable frequency is added with help of Miessner ECO and Signal Shifter. Receiver is a RME 45. Pop says the air gun is used to scare the cats away from the canaries he feeds with sweet water at the "aquate" tree in the back yard! Puerto Rican hospitality was once again to the fore during the rather lengthy sojourn in hospital of Mrs. Ve3AZI. Born in Santurce, present home of her parents, Mrs. Gillier's progress after a serious operation was reported daily to her mother through a schedule arranged by KP4JA daily. SALUDOS!

## Come!

See the Glacier Eagle at the Waterton Glacier International Hamfest, in the heart of the Rockies. An outstanding program, in a superb setting. A trip and a Hamfest you'll never forget.

**JULY 14 - 15**

Waterton Lakes National Park, Alberta





# DEAR OM

XTAL assumes no responsibility for statements made herein by its correspondents.

## APPRECIATION

Ottawa, Ont., 223 McLeod St.

Editor, XTAL:

Re brother VE1LI, I refer him to the Edwin Markham poem:—

There is a destiny that makes us brothers,  
None goes his way alone,  
All that we send into the lives of others  
Come back into our own

This applies to radio as well as other factors in life. I got a hint in January XTAL for operation on 6 metres that I consider well worth my dollar subscription. The article by Wilton in February XTAL is well worth a dollar to any new ham. Any single item in a year's issue that will help a ham improve his station should surely be worth a dollar.

With grateful appreciation for the time the HQ gang have spent on XTAL without any monetary returns.

Yours, with good will,

DOUGLAS H. NELLES, VE3ND.

## "... THERE IS A DESTINY THAT MAKES US BROTHERS ..."

1162 No. 4 Road, Stevenson, B.C.

Editor, XTAL:

Have been going to write you re an idea I had. While visiting our local Veterans' Hospital, I thought it would be a good idea if a group of hams or clubs, would sort of sponsor a helpless ex-serviceman who was interested in ham radio.

The D.V.A. representatives at Shaughnessy Hospital thought it was an excellent idea. The Vancouver Totem Club is also taking it up. I thought you people could use the same idea, and make it a national effort on the part of VE hams, to help rehabilitate some of these poor boys. What say?

W. H. BILL SHARP, VE7DB.

• . . This is an idea we can heartily commend. What about it, clubs?

## G2CXQ

Lanark, Ont.

Editor, XTAL:

In QSO with G2CXQ today and he would like to get in touch with the boys who attended the Wandsworth Tech. Inst. (W.T.I.) in England during the war. G2CXQ is Clem S. Child, 84 Gibson's Hill, Norbury, S.W. 16. Clem is on 10-metre fone around 28,300 to 28,400 kc.

W. BERT KNOWLES, VE3QB.

## WE, THE PEOPLE . . .

c/o B.C. Forest Service, Victoria, B.C.

Editor, XTAL:

Although, as yet, no official word has been received concerning major changes in amateur frequency allocations, we, the undersigned, wish to take this opportunity to express our views through CAROA.

These general views are summarized as follows—

1. We vehemently protest any contraction of any of the present amateur bands.
2. We positively disapprove of any commercial stations operating on any amateur frequency.
3. If it was deemed advisable, we would not object to a more rigid inspection of amateur radio installations.

The wealth of enjoyment, knowledge, and good fellowship gained from amateur radio far exceeds any other hobby in these respects. Well known are the valuable contributions made by amateur radio the world over both to the advancement of radio science and in the training of thousands of commercial personnel. The

ethics of amateurs, as a body, are beyond reproach.

We will close by saying we disfavor in the extreme any factors tending to curtail amateur radio activity.

G. A. CARFAIR, VE7SY  
H. E. FERGUSON, VE7RB.  
S. CHOTEAU, VE7DA.

## CW FOREVER

Chicago, Ill.

Editor, XTAL:

We specially note your piece on "Scallions" in the February XTAL. I appreciate your treatment of emergency radio communications and heartily approve of everything which would make the knowledge of CW mandatory. The police circuits have a somewhat similar situation between wire and radio. Emergency situations are serious business with us, therefore we endorse the use of radio which includes CW operation.

Ero Erickson, W9HPJ.

## THANKS

1776 Westcott Rd., Windsor, Ont.

Editor, XTAL:

May I through the medium of XTAL express my thanks for the support given me in the recent election for C.G.M. for the A.R.R.L. The total number of votes cast was very gratifying, and I sincerely hope that the interest shown will be maintained.

Mr. Reid has a very difficult job to do and probably more difficult than at any time before. His job and amateur radio can only be successful by 100% co-operation and understanding across Canada.

We have in CAROA and the A.R.R.L. two wonderful organizations that can help amateur radio no end. There is existing today harmony between the two organizations, and it is hoped that we in the amateur ranks in Canada can pull our weight for the common good of ham radio. It is a great hobby and worth fighting for.

THOS. HUNTER Jr., Ve3CP.

## ORCHIDS

Finlay Forks, B.C.

Editor, XTAL:

Enclosed is my sawbuck for renewal of my membership in CAROA.

From me it's a bouquet! I have enjoyed XTAL immensely throughout the past year, and wish you continued success with an fb little mag.

While enjoying the whole thing, the articles I like best are ones like Mr. Wilton's in the February, 1947, number and the gear circuits presented variously by SACL, 7US, and others, not to mention the solid stuff of 2KK (antennas) and C. J. Bridgland (ditto and lines).

Eric Adams' stuff is priceless; will be delighted to see another of the same calibre as "A Ham Returns to 40"! P. A. VATCHER, Ve7YF.

## DON'T AGREE

11 Copp St., Lakeburn, N.B.

Editor, XTAL:

I take exception to Jack Green's article on "Who's Who in WAC" on page 18 of the February issue, and imagine that you will have others on your neck on the same score. Jack's data is based solely on records of the issue of WAC certificates by A.R.R.L., and to get one of those you had to be a member of A.R.R.L. no matter how many times you WAC'd. I am one of the unfortunates who made WAC in 1935 (Ve6EU at the time) but, not being an A.R.R.L. member, couldn't get my certificate. . . . To anyone reading the article it appears that the calls and names listed 1926-35 are the only ones in Canada who worked all six continents during those years.

D. G. MURPHY, Ve1AQ.

# C A R O A NATIONAL REPORT

## Ve1

Ronald J. Hesler, VE1KS, Sackville, N.B.—EW active on 20 with a total of 29 countries to his credit to date. RE is working VK's on 20 fone through heavy razor QRM. BF of 20 and 10 fame appears on 75 fone. QS times; is building PP812 final woe to Dogpatch. PA has appeared on 20, says that 10 gets a little quiet at features now square doublet and is building a ¼ KW rig. QT lost his 80 meter Zepp in ice storm, however, gets good dx with a new 20 meter vertical antenna; is missing A.F.A.R.S. skeds on account of no 80 antenna. TN heard regularly on A.F.A.R.S. phone net—having spot trouble on his new scope. LO is tracking down parasites trying to stay off aircraft frequencies. MQ is active on 20 meters. IU is active on 75 and 10 fone and is working on a new mike. AQ works WAC in his spare time and loans exciter to TW who is being fb-dx—Don wonders if he should throw his 250 watt wave trap out and use only the exciter. The Lakeburn Club were hosts to the Moncton Club on April 21. An auction and tour of the radio transmitter building at Scoudouc were highlights of the evening. The visitors were impressed by the rows of 5KW transmitters and associated equipment. (Drop down to Sackville some time boys and we'll really show you some power!) The club was richer because of the auction, having received 10% of the gross. The Lakeburn Club is now working on Field Day equipment. Plans are also underway by this energetic club for a large banquet to mark the close of the active club season at the end of June. The Loyalist City Amateur Club turn out a very fb bulletin once a month under the editorship of RQ. There are now 39 active hams in the St. John area. The L.C.A.R.C. has decided to hold a six meter Field Day on June 29 at Victoria Wharf and reports that most of the St. John boys are busy on their six meter rigs, thereby explaining the apparent slump of activity on the other bands.

The newly-formed Truro Amateur Club held a banquet in May at Pryors Guest House at which the following hams blew into in addition to all the members of the club who were present: GW, DZ, TX, HR and TP. According to all reports the boys really had a bang-up time. EQ furnished the music via the piano and HR and Gordon Purdy rendered several vocal selections. After it was all over, EQ could not tell whether it was rain drops or what hove you that was trickling in front of his eyes, let alone being stuck in the seat! EQ is working on a modulator and hopes before long to be on phone and banging out news about the Truro Club. GK packs quite a wallop with his 40 watts; is on phone occasionally but likes CW just as well—perhaps it is B.C.I. NZ pours out, or, should we say into his final 150 watts and what he gets out is known only to himself (who knows it might be Fraser); plans to erect his rotary beam before fall comes. KN plows a 200 watt furrow these days with an 813 modulated by a pair of 809's; the rotary beam has not been lifted yet and plans are under way for a rack mounted job. TP who lost a 50-foot cast some months ago expects to have things ready soon to puncture the ether with a 500 watt IB hits the air occasionally, using 35 watts to a single T-20 and hopes to get something bigger and better on soon. CB is in the process of getting his rig going again. QK keeps the 10 meter band hot from Truro and has made hundreds of contacts using an 807 with 35 watts; he hopes to be doing six meter work if his order for equipment beats old man summer. Gordon Purdy, a Truro ham to be, is hard at work on his code practise and before long expects to make the final plunge. Best of luck Gordie.

SY is at present hard at work on 20 CW while rebuilding his entire rig for one of dem high power class B phone rigs. QE still sits back looking at his exciter and saying "some of these days real soon, am going to rebuild that." The Halifax, Moncton and Annapolis Valley Club's are the "bad boys" this month no report! 73 Ron

Traffic: QT-25, KS-39

## Ve3

R. C. Hunt, VE3WX, London—BEAVER NET meets at 8 p.m. D.S.T. daily. Members: QU, QE, OI, TM, BLE, AWJ, BCS, BBQ, XO, SF, BME, HP, WX, 2GL, BME getting ready for the big jump. Sometime in June we hear. PH running up a score on 20 fone. PA has a seven-foot rack job in operation. Also a bunch of war assets equipment. BBQ is also collecting war assets and trying out with the Beaver Net through BAK QRM. BGI works two bands with one transmitter at his new QTH. AZN taking a look at the innards of BC181 together with friend Tim. BJE rebuilding a BC348. ALU trying to catch PH score of dx. BHU has had over 80 contacts on 40 with 6Ls and clothesline antenna. AIN loses his tower but gets a new S40. AMC still going strong with the VK and ZL gang. BAJ reports from Pagwa. Has card from VE3NW and has had 144 contacts in five months with a maximum input of 17 watts. HI busy making his rig pretty. Hope it works as well as what Jim called hay wire. DU showing some activity on 40. BCS looking for a bug to go with a 25 WPM certificate. TM still struggling with his receiver? and as usual rebuilding again. CP already has sale for receiver he is going to win at Michigan Hamfest. TI like Rummoil especially in Thorold. ATR still confined at Westminister Hospital but passes traffic to Beaver Net by landline via WX. No report from the fone gang this month. Guess they must all be getting code practise from WIAW.

## Ve4

C. E. Johnson, VE4XO, Manitoba—The Winnipeg Amateur Radio Club will be holding their social evening on the 15th May. All the xyls and yls and friends are all invited. A good turnout is expected. The club now holds their meetings the last Friday of each month in the club-rooms of the Winnipeg Free Press building. Don't forget any of you out of town boys. Drop in and meet the fellows who are causing all the qrm. There are still a lot of complaints about the boys over modulating on 20 phone. Watsa folks, remember there are others on the air also. Several newcomers have shown up on 20 in the past month. FY is operating from the airport both on 20 and 75 fone. AC will soon be moving to Edmonton with a VE6 call. CX is also a new one heard on fone. AD is off until he changes his qth. KI is rebuilding. WF is running 60 watts to pr. 813's on fone. KF can be heard on 10 and 20 fone. TV is on 20 and 40 CW. XP from Dauphin is back on 75 fone. KW and KE, also from Dauphin are coming through nicely on the church organ. PA has new AR6 receiver. AI from Binscarth now trying 75 fone after year on ten. KL seems to be a boot-legger operating both 75 fone and 40 CW. BN is off as landlord put him out. EK, NT and FU are trying out VHF, when not on ten or 20 meter fone. Rumours of new fone regulations have found lot of the fone boys practicing up their code. Our new Manitoba QSL Managers is now the female half of station 4NI, Mrs Margaret Sutton. Lots of luck, Marge. Bill works them and Marge collects them. 73, Chuck.

## Ve5

Saskatchewan, Bill Gordon, VE5MW. — 5VA is going to try a little FM with a new Sonar FM exciter. 5RD has finally got over his ten-meter fever and is back on 75, running a sock to 8110s. 5BT is going to town on ten meters and has been working quite a little bit of dx, even with condx the way they are. 5BB is on





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80 CW along with 5IL and 5SD. 40 meters is represented with 5YI, 5WR, 5QS, 5GO, 5RC and 5MW.

5PA has a new Jr. Op. and is sporting it in a flashy b-b-y carriage—a red panel truck fresh from the factory. Marshall can be heard quite consistently on 75 phone. 5VB, PA's consistent 20-meter phone man, now has BCL trouble . . . poor fellow! He works out very well on 20 with an 807 (old faithful again) in the final and a haywire fixed beam. He is looking for a contact with a Holland station (as who isn't?). 5AW is experimenting with a new rig with an 807 in the final trying to get the last milliwatt into the antenna before operating it on the air. 5HI of Meadow Lake is now working in P.A. temporarily and misses his rig and beam. 5DW has been rebuilding his rig and hopes to have it completed and in a Hammond cabinet before many months pass. Many thanks to 5DW for all the above dope on the P.A. range.

5RV and 5IC were heard practicing for the Hurs' contest, and by the sound of it they are going to prevent a lot of tough competition for those fur-lined buttonholes. Has anyone got a crow-call for 5IC? 5JS has lost his trousers. 5GI is on 75 phone.

## Ve6

Bill Savage, Ve6EO, Lethbridge

6EH has 650 hives of bees to look after, that should keep him busy. 6PP needs an African for WAC. Herbie, wishing you luck, Pere. 6KU and 6TA are getting out O.K. with their rig but have really been snowed in. 6SO is really seeing the country now, think he's trying for a V.A.C. Visit All Countries. He has been in England, and now is in Holland, and will be back in England in May and then where, who knows? 6UT has his nose on the grindstone, studying for exams at Varsity. 6OT and 6RQ are trying to work out skeds on 7 meter phone but it seems both are not at home at the same time. 6ZM is planning out a new antenna system for next burst of activities. 6US and family have moved to Banff, lots of luck on your new job Johnny, and hope to hear from you soon. 7AG visits Lethbridge to show films on fire alarm systems. 6LE as xyl 6JT have moved to Victoria, we hope your good dx continues with you both, Jean and Earl. 6GI and 6PY have got QSL cards waiting for them and their QTH is unknown, so what say you? 6FH after working lots of nice dx all winter, is now QRL to build up a good rack and doll up the rig by adding panels. Nice going Ted. 6EL wants a comparison test for him on his transmitter (the six electric light).

6HN is moving his rig from the shop to the house. Met he wants a cup of tea while he is QSO'ing hi. 6AB says he has been good in Calgary lately. 6AO is on 75 fone with a pair of 5 lb. bags of rolled oats in P.P., so he says. 6MP says the boys in Okinawa tell her that recruits do not grow there and no women there. And they can do is play checkers. 6DN pays a visit and remains, even though he has acre of land around he still has a job finding a place for an antenna. 6IC is out at Vancouver on business, now the other boys have a chance at dx, hi. 6KO is building a rotary beam. 6EV has built an electronic switch to use with his scope. 6SV has gone to Peterborough with the General Electric Co. Lots of luck to you, Stan. 6BC and 6OF are busy collecting equipment for a ham display in a store window. 6OG is still busy with the new 5,000 watt CJCQ, and expects to have it on the air this week-end. 6MJ is very busy with his O.B.S. work. 6AL is recovering in the hospital after his tough experience in the northern bush country. Mighty glad to see you back safely Spencer, to have many more pleasant QSO's.

Well fellows how about some news next month. Thanks very much to those that have sent in some dope. We sure appreciate it. 78 gang. C.U.L.—6EO.

## Ve7

D. E. McLennan, Ve7JY, Vancouver

We have revived the Alberni District Amateur Radio Club with a membership of six active amateurs. We expect to get quite a few more members in the near future. Some are learning the code, etc., for their tickets and we have quite a number of SWL's. Some of the SWL's phone us when anyone is trying to call us on the 75 phone band.

7ACC may be heard on late at night cutting through the QRM. That-a-boy, Ivan. CX has increased his power and expects to put up a first class 75 meter antenna soon. His family chores—1/2 watts and one watt, but no kilowatts keep him busy. 7HE, the Happy Engineer, has

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**POWER SUPPLY** - 110 Volt AC 60 Cycle or 12 Volt DC  
input will give you 2000 Volt output, Special **\$55.00**

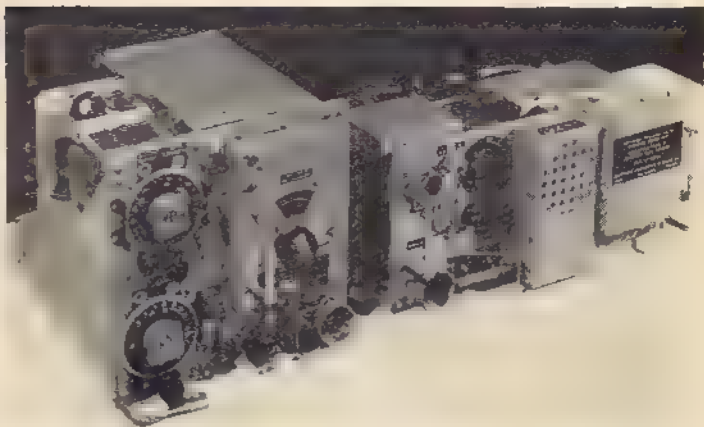
Wire or Write

## EDWARDS SUPPLY HOUSE

584 Mount Pleasant Road

MA. 8811

Toronto, Ontario



been heard, too, with his 2.5 watts, working from his Sproat Lake Resort. Why the .5 watt we do not know. No QRN or QRM at the lake, he claims, but he doesn't want PY moving in next door. He is up in the air over his 75 meter antenna. It is up 75 feet but he is going to push it up to 100 feet. TACW is on 80 CW and expects to be on 75 fone before very long. Having quite a time building his modulator. TKE is on 40 CW when he can get on. He is too busy stamp collecting during his waking hours. In the Port Alberni Post Office. Hi. 7PY is heard on 75 fone only. Ask the R.I. Some of the 17K1?? "Plastic" receiver owners don't think so, though.

We get quite a kick listening on the 75 phone band to the pros and cons, etc. Had to laugh one night when I was accused of QRMing a station being worked. "When PY comes on he blows you right out of the picture. QRX a minute and I'll see if the channel is clear. No, he is still on. Well, I guess I'd better talk a little more, etc. Just a minute—he is off now—go ahead." Poor PY—his exciter was all laid out on the bench. Such is life on this band of QRM. QRN, VFO's, etc.

Final touches in 813 final by Doug. Gordon, soon have VE7DJ (club xmitter going). Technical data by AZ. TNX boys. Vy nice lecture on "Carrier Current Communications" by Chas. Clark of B.C. telephone, was enjoyed by all at our last meeting. UU working 10 fone. Nice collection of G cards by Alf. YS busy exterminating parasites in 897's. Try DDT Hugh. ABP not yet? MH Gord. Armstrong's new sec. is dx boy (gets two VSI's S8 and usual Russians on new antenna), sez it works fb.) Phone after 5. OJ Gord Clarke running VFO up es dwn 40 es 20CW. Hpe u move to nw qth on Gord. hi, hi ADV Lukng fr nw chassis wth tires to put mobile rig. Heard on all bands. Yep, even two meters. Del Foster well on way fr ticket. Rpts revr wrking fb nw. Nice home brew super. LF busy on the dx hound. Can be hrd mst anytime on 20 is 40 CW. AZ our most ambitious character is operating 10. Wrks out if wind is in right direction. hi, hi. AJR Spud Clarke heard on 10 wid nice testing equipment. Could it be the yl we hrd Spud? AJP Erling Akerberg has his net out (not for dx tho'). Gone fishing. Due to AZ's persistence is BE's aid in the culinary dept. Coffee and sinkers made their debut at our last meeting. Vy nice and fb too. Looking forward to more of the same fellas.

## CRYSTAL CALIBRATOR UNITS

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For use with Mk 19  
Tank Sets  
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R-45 Speaker	42.30

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**SONAR**, Originator and leader of NBFM for the Ham, uses an exclusive NBFM† circuit\* employing Phase Modulation (giving symmetrical sidebands) and extends to the user the following features . . .

- **POSITIVELY ELIMINATES BCI.**
- **MORE POWER OUTPUT WITH SONAR NBFM THAN WITH ANY OTHER TYPE MODULATION.**
- **LESS QRM RESULTING IN BETTER DX.**
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- **FREQUENCY STABILITY IS AS GOOD AS THE XTAL OR VFO USED.**

These features of SONAR NBFM have been discussed at length in articles in QST (page 40 Oct. 46—page 11 Jan. 47—page 28 Feb. 47—page 30 Mar. 47) and CQ (page 7 Mar. 46—page 30 Oct. 46—page 9 Apr. 46). Application of this exclusive SONAR circuit, to convert your CW or AM rig to NBFM, depends on your needs.

**THE XE-10**, first of the SONAR products, was designed to give the Ham a modulation unit for his complete AM rig. The XE-10 will convert any CW rig (regardless of power) to NBFM. Your VFO can be used to regulate the frequency input to the XE-10 or the xtal can be inserted directly into the XE-10.

**THE VFX 680** was designed to meet the demands for a stable VFO-xtal exciter and also incorporates the exclusive SONAR NBFM circuit\* giving a complete 4 to 6 watt all band exciter, with NBFM phone and/or straight CW. The VFX 680 also has VFX (rubberizes any cut xtal) giving xtal stability with a variable signal. An ideal "pre-stage" for that new rig.

**THE MB-611** is another SONAR product incorporating NBFM, designed for mobile or fixed operation, on 6 to 11 mtrs—40 watts input with a pi-network to match any antenna. Further details on this xmitter and other new SONAR developments will be found in future advertisements. The engineering staff at SONAR has many new designs including low, medium, and high power xmitters.

\*Pat. Pend.

†NBFM is at present permitted on 10 meters and above 29 meg. in Canada on 27.395 to 27.455 and 29.5 to 29.7 meg.

Sonar Representatives in Canada—Frank's Agencies, Alberta—Measurement Engineering, Ltd., Toronto.



**XE-10 AMATEUR NET \$55.00** Complete Less Xtal



**VFX-680 AMATEUR NET 122.25** Complete Less Xtal



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... Hi! ...

A couple of weeks ago the R.I. in Saint John was examining a candidate for an amateur license and after finishing the written test the aspirant was led up to the top floor of the customs house there to take his code test in the room which was set aside for that purpose. Imagine the surprise of the inspector and the candidate when, on opening the door to the room, they found a pigeon nest complete with mama pigeon and one egg perched right smack-bang on the sending key of the oscillator! The pigeon was soon chased out the window and the test proceeded with after some of the pigeon's hearth and home had been pushed aside. However, the payoff came the next day, when the inspector was relating the incident to another ham and took him up to view the scene of the crime and found that Mrs. P. had re-entered the room through another partially opened window and had rebuilt the nest! The R.I. has been taking quite a ribbing to the effect that he must be losing confidence in radio as a means of communication and is secretly taking up the breeding of carrier pigeons. Incidentally, the ham who took the test didn't lay an egg on the job, but passed the test, although it's hard to write down morse when one is shaking with laughter!

D. R. Burrill, 32 Pitt St.,  
Saint John, N.B.

## VHF—from page 10

katchewan VHF activity, so what say Saskatoon, Regina, etc.?

### Ve7 District

Ve7NM (Vancouver) has worked 6, W6's and 3, W7's for good dx with 8 watts to 807 final and 4 element horizontal rotary on 6. The Vancouver boys work W7GQX (Port Angeles, Wash.) a distance of 70 miles, regularly with good signal strength. Ve7AEZ (Ioco, B.C.) 15 miles east of Vancouver, monitors 6 meters during daytime occasionally and works fb dx. He runs 180 watts to p.p. T40's. Ve7AHZ runs 30 watts to 815. Ve7VY has 150 watts to 813 on 6 and is rebuilding to 829B final. Ve7BQ runs 70 watts to HK54 on 6 and is going xtal control on 2 meters. All Ve7's are convinced that horizontal polarization is best and all are using either 3 or 4 element beams.

### QVE

If you move to another location, town, or country please notify CAROA HQ immediately so that you will not miss a XTAL. Always be sure to include your call when forwarding any information of this kind.

**Rag-chews with  
XTAL readers**



No. 12 in a series

## Haywire versus Chromeplate

We all admire the resourceful ham who can get anything from a balky mule to a 6 meter job working with a piece of haywire placed just where it is needed.

There are stations dotting the globe which are chock full of ingenious gadgets and ideas, yet which always appear to be half-finished. Don't believe them. More than likely they have an alert owner who is always trying something new. He probably has a fat stack of QSLs of the DX variety tucked away somewhere.

However most of us like to doll up our handiwork like a commercial job. If this can be done without losing flexibility, there are many advantages.

1. More stable operation.
2. Less fire hazard.
3. Less danger of a "High-voltage Manicure".
4. It will impress the neighbours a lot more.

We have a nice little unit that will help in that direction. It is a flat wire-wound resistor, molded in bakelite, and is called our M-1034 Bleeder. It has 25,000 ohms overall resistance with taps at 7,500, 10,000, 12,500, and 15,000 ohms. The rating is 18 watts when mounted flat against a metal chassis,

somewhat less on a wood baseboard, and 9 watts in free air. The metal chassis helps to radiate the heat. The maximum current in any section should not exceed 28 milliamps. These ratings are based on a 100 degree C. temperature rise. The mounting bracket attached to the resistor holds it securely and the soldering lugs offer a convenient tie for by-pass condensers and wiring. Its virtues are obvious as a bleeder and bias resistor for a receiver or transmitter power supply up to 500 volts. Really slick for new 6 and 2 meter applications.

Since  $I$  equals  $E/R$  and Watts equals  $E^2/R$ , the bleeder current and dissipation, due to the bleeder current are  $I$  equals  $E/25,000$ , etc., as follows:

DC Volts	Bleeder Current Amps.	Watts
200	.008	1.6
250	.010	2.5
300	.012	3.6
350	.014	4.9
400	.016	6.4
450	.018	8.1
500	.020	10.0

Where neatness and compactness are important these M-1034's should be useful. In high quality speech amplifiers and VHF equipment you will find them just what the doctor ordered.

**INTERNATIONAL RESISTANCE COMPANY**



## QSD? - QRI?—from page 8

pentode stage with higher screen voltage, with the additional advantage that crystals may be used whose activity is below the level required for fast keying where the crystal must follow the keying.

Alternatively, the oscillator may be changed to a straight pentode by replacing the cathode choke or tuned circuit with a 1000-ohm resistor by-passed with .01 or so, to limit the screen dissipation when key is up. Even under such circumstances, suppressor keying remains possibly the best type of oscillator keying available.

This system obviously will not entail any sparking at the key which so often involves cumbersome combinations of chokes, condensers, etc., mounted right at the key, but it is perhaps only fair to point out that here an impasse exists. Especially when using a bug, a little sparking is valuable as it tends to keep the dot contacts clean, as there is very little mechanical force exerted on these contacts and particles of dust tend to lodge on them, which would be burned clean by sparking. Consequently in "no-potential" service such as this, a little attention needs to be given occasionally to keeping the key contacts bur-

nished, or, if a keying relay is used, it should be cared for accordingly.

Another point that has been found to be assistance in the writer's rig is to use as much fixed bias and as little grid leak bias as can be conveniently arranged on all stages—the process of building-up of bias across the grid leak at the beginning of the wave train tends to nullify the shaping effect slightly, resulting in a click on key-down.

In all cases where a receiver is being operated close to a transmitter both physically and with respect to its input circuit tuning, it should be protected by a neon lamp ( $\frac{1}{4}$ -watt or so—no resistor) connected across its input, to prevent the first stage from being overloaded, which often results in the AVC isolating resistor (see Fig. 6) burning out. With such a heavy overload the grid cathode circuit merely becomes a diode rectifier with R as the load resistor, without regard to whether the set B+ is turned off or not.

### APCO CONFERENCE

The 1947 meeting of the Associated Police Communications Officers will be held in Los Angeles, Calif., August 25-29.

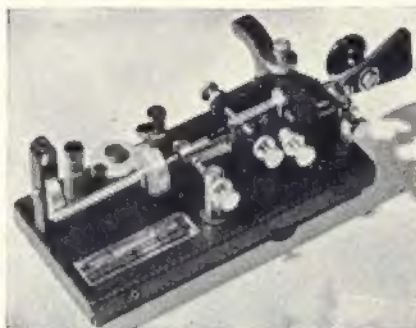
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Model SA-100, regular \$14.95, your price just **\$7.95**

Popular brand 0-1 DC Milliammeter,  $4\frac{1}{2}$  inch bakelite case **\$6.95**

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\*Mr. Ogg's original  
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90881

**The No. 90881  
RF POWER AMPLIFIER**

This "500" watt, RF power amplifier unit may be used as the basis of a high power amateur band transmitter or as a means for increasing the power output of an existing transmitter. As shipped from the factory, the No. 90881 RF power amplifier is wired for use with the popular RCA or G.E. "812" type tubes, but adequate instructions are furnished for re-adjusting for operation with such other popular amateur style transmitting tubes as Taylor T240, Eimac 351, etc. The amplifier is of unusually sturdy mechanical construction, on a 10 1/2" relay rack panel. The panel contains the grid and plate tank tuning capacitor dials, as well as the grid and plate current milliameters. Plug-in inductors are available for operation on 10, 20, 40 or 80 meter amateur bands, from stock, as well as special coils to order for commercial frequencies. The standard Millen No. 90800 exciter unit is an ideal driver for the new No. 90881 RF power amplifier.

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**QUICK SALE**—National Receiver 81X, 5 bands, 10 to 160 meters, Crystal, Speaker, \$100.00 or nearest offer.—L. Pimbert, 510 Jarvis St., Toronto, MI. 9228.

**SALE**—Meissner Traffic\* Master, Model 10-115. 5 bands including BCL, 14 tubes plus VR OC3-105, Communications Receiver complete with 12" dynamic Spr. in Baffle Easel mounting. Top Shpae, used on 10 meters recently. Priced at at \$100.00 with schematic and manual.—W. J. Bruce Marsden, Ve6BM, Box 52, Vulcan, Alta.

**ACT FAST**—R1155 receiver with power unit, excellent condition, over for use with speaker and phones. Best offer near \$100.00 takes.—Mark Bell, 1393 Bathurst St., Toronto, KE. 6588.

**C.A.R.O.A. EMBLEMS**—Lapel-type buttons now available. Identify yourself as a member of CAROA at all gatherings. Postpaid from C.A.R.O.A. Hq., 46 St. George Street, Toronto, Ontario, for 75c in Sterling Silver.

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### Hollicrafters

S-38	\$ 83.95
S-40—60 cycle	137.85
S-40—25 cycle	150.15
Sx-42—60 cycle	409.50
SX-42—25 cycle	429.95

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Shure Hand Mike, carbon button, push to talk, with cord and plug	\$2.25
SCA2-8 Special Three Way Jack for PL plug on above	.55

Dynamic Head Phones, hearing aid type, plug in to ear, 200 OHMS, Special \$1.60 pair

Sensitive Relay, S.P.D.T., 1280 OHM coil, operates on 2 MA. Midget size. Your cost \$3.00

Cardwell, trim-air style padders, screwdriver adjustment. Can be modified for knob. 50 MMFD, 100 MMFD. Your cost either type .89

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810	\$ 5.00	829-B	\$5.00
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60041—Slug Tuned Coil only for R-9'er.	
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